

CLAIMS

1. A method of evaluating compounds which are effective for treatment or prevention of obesity comprising

5 a step in which a test compound is administered to or contacted with a test animal or a test cell, and

a step of detecting change in the expression level of Slc25a10 gene or a gene which is functionally equivalent to said gene, in said test animal or test cell.

10 2. A method of evaluating compounds which are effective for treatment or prevention of obesity comprising

a step in which a test compound is administered to or contacted with a test animal or a test cell possessing a fusion gene comprising the expression regulatory region of Slc25a10 gene and a reporter gene, and

15 a step of detecting change in the expression level of said reporter gene in said test animal or test cell.

3. A method of evaluating compounds according to claim 1 or 2, wherein said change in expression level is a reduction in the expression level.

20 4. A method of evaluating compounds according to any one of claims 1 to 3, further comprising a step of detecting change in at least one selected from ACC1 expression, malonyl-CoA abundance and fatty acid abundance.

25 5. A method of evaluating compounds which are effective for treatment or prevention of obesity comprising

a step in which a test compound is administered to or contacted with a test animal or a test cell, and

a step in which it is confirmed whether or not said test compound exhibits an effect on the activity of Slc25a10 protein.

30 6. A method of evaluating compounds which are effective for treatment or prevention of obesity comprising

a step in which a test compound is contacted with Slc25a10 protein, and

a step in which it is confirmed whether or not said test compound

exhibits an effect on the activity of said protein.

7. An agent for treatment or prevention of obesity containing as an active ingredient a compound obtained by an evaluation method according to any one of claims 1 to 6.

8. A method of inhibiting fatty acid synthesis by lowering the expression level of Slc25a10 gene.

9. A method of inhibiting fatty acid synthesis by lowering the expression level of Slc25a10 gene by RNAi.

10. A method of inhibiting fatty acid synthesis according to claim 9, wherein said RNAi is accomplished by using one or more siRNA selected from the group consisting of siRNA consisting of the nucleic acids of SEQ ID NOs: 3 and 4, siRNA consisting of the nucleic acids of SEQ ID NOs: 5 and 6, siRNA consisting of the nucleic acids of SEQ ID NOs: 7 and 8, siRNA consisting of the nucleic acids of SEQ ID NOs: 9 and 10, siRNA consisting of the nucleic acids of SEQ ID NOs: 11 and 12, siRNA consisting of the nucleic acids of SEQ ID NOs: 17 and 18, siRNA consisting of the nucleic acids of SEQ ID NOs: 21 and 22, siRNA consisting of the nucleic acids of SEQ ID NOs: 23 and 24, siRNA consisting of the nucleic acids of SEQ ID NOs: 25 and 26, siRNA consisting of the nucleic acids of SEQ ID NOs: 27 and 28, siRNA consisting of the nucleic acids of SEQ ID NOs: 29 and 30, siRNA consisting of the nucleic acids of SEQ ID NOs: 31 and 32, siRNA consisting of the nucleic acids of SEQ ID NOs: 35 and 36, siRNA consisting of the nucleic acids of SEQ ID NOs: 37 and 38, siRNA consisting of the nucleic acids of SEQ ID NOs: 39 and 40, siRNA consisting of the nucleic acids of SEQ ID NOs: 41 and 42, siRNA consisting of the nucleic acids of SEQ ID NOs: 43 and 44, siRNA consisting of the nucleic acids of SEQ ID NOs: 45 and 46, siRNA consisting of the nucleic acids of SEQ ID NOs: 47 and 48, and siRNA consisting of the nucleic acids of SEQ ID NOs: 49 and 50.

11. A method of inhibiting fatty acid synthesis according to claim 9, wherein said RNAi is accomplished using siRNA consisting of

the nucleic acids of SEQ ID NOs: 9 and 10.

12. A method of inhibiting fatty acid synthesis according to claim 9, wherein said RNAi is accomplished using siRNA consisting of the nucleic acids of SEQ ID NOs: 41 and 42.

5 13. A method of treating or preventing obesity comprising a step of lowering Slc25a10 gene expression level.

14. A method of treating or preventing obesity by lowering Slc25a10 gene expression level using RNAi.

10 15. A method of treating or preventing obesity according to claim 14, wherein said RNAi is accomplished by using one or more siRNA selected from the group consisting of siRNA consisting of the nucleic acids of SEQ ID NOs: 3 and 4, siRNA consisting of the nucleic acids of SEQ ID NOs: 5 and 6, siRNA consisting of the nucleic acids of SEQ ID NOs: 7 and 8, siRNA consisting of the nucleic acids of SEQ ID NOs: 9 and 10, siRNA consisting of the nucleic acids of SEQ ID NOs: 11 and 12, siRNA consisting of the nucleic acids of SEQ ID NOs: 17 and 18, siRNA consisting of the nucleic acids of SEQ ID NOs: 21 and 22, siRNA consisting of the nucleic acids of SEQ ID NOs: 23 and 24, siRNA consisting of the nucleic acids of SEQ ID NOs: 25 and 26, siRNA consisting of the nucleic acids of SEQ ID NOs: 27 and 28, siRNA consisting of the nucleic acids of SEQ ID NOs: 29 and 30, siRNA consisting of the nucleic acids of SEQ ID NOs: 31 and 32, siRNA consisting of the nucleic acids of SEQ ID NOs: 35 and 36, siRNA consisting of the nucleic acids of SEQ ID NOs: 37 and 38, siRNA consisting of the nucleic acids of SEQ ID NOs: 39 and 40, siRNA consisting of the nucleic acids of SEQ ID NOs: 41 and 42, siRNA consisting of the nucleic acids of SEQ ID NOs: 43 and 44, siRNA consisting of the nucleic acids of SEQ ID NOs: 45 and 46, siRNA consisting of the nucleic acids of SEQ ID NOs: 47 and 48, and siRNA consisting of the nucleic acids of SEQ ID NOs: 49 and 50.

16. A method of treating or preventing obesity according to claim 14, wherein said RNAi is accomplished using siRNA consisting

of the nucleic acids of SEQ ID NOs: 9 and 10.

17. A method of treating or preventing obesity according to claim 14, wherein said RNAi is accomplished using siRNA consisting of the nucleic acids of SEQ ID NOs: 41 and 42.

5 18. A method of examining obesity by assaying expression level and change in expression level of Slc25a10 gene in a test tissue or a test cell.

10 19. A method of examining obesity by assaying expression levels and change in expression level of Slc25a10 protein in a test tissue or a test cell.

20. A method of examining obesity by assaying change in the amount of a substance involved in fatty acid synthesis resulting from change in expression level of Slc25a10 gene or activity of Slc25a10 protein in a test tissue or a test cell.

15 21. A method of examining obesity by detecting a polymorphism in Slc25a10 gene in a test tissue or a test cell.

22. A method of examining obesity by detecting expression or activity of a protein which affects expression of Slc25a10 gene through interaction with Slc25a10 protein.

20 23. siRNA consisting of the nucleic acids of SEQ ID NOs: 9 and 10.

24. An Slc25a10 expression inhibiting agent comprising siRNA according to claim 23.

25 25. A fatty acid synthesis inhibiting agent comprising siRNA according to claim 23.

26. A therapeutic or preventing agent for obesity comprising siRNA according to claim 23.

27. siRNA comprising of the nucleic acids of SEQ ID NOs: 41 and 42.

30 28. An Slc25a10 expression inhibiting agent comprising siRNA according to claim 27.

29. A fatty acid synthesis inhibiting agent comprising siRNA according to claim 27.

30. A therapeutic or preventing agent for obesity comprising siRNA according to claim 27.